# **D.1** Tabulation of Close-Ended Responses

This appendix outlines how respondents answered each question based on version (base versus scope). In total, 1,093 people received the base questionnaire and 554 people received the scope questionnaire. In the analysis that follows, the tables display the percent of respondents who selected one of the possible response categories for the base and scope questionnaires. *Don't know* and *refused* categories are combined into a single category. The tables are presented in the order in which the questions were asked using text from the base questionnaire.

Table D.1. Answers to question Q1: How important to you is improving education in public schools?		
Response	Base	Scope
Not important at all	1.0%	1.5%
Slightly important	1.1%	2.2%
Moderately important	5.8%	4.6%
Very important	35.2%	35.7%
Extremely important	56.9%	56.0%
Don't know/refused	0.0%	0.1%
Total	100.0%	100.0%
F(4.17, 283.36) = 0.9987, p = 0.411		

Table D.2. Answers to question Q2: How important to you is reducing water pollution in Oklahoma lakes and rivers?		
Response	Base	Scope
Not important at all	1.6%	1.3%
Slightly important	3.8%	4.3%
Moderately important	13.1%	10.8%
Very important	44.2%	44.1%
Extremely important	37.1%	39.5%
Don't know/refused	0.2%	0.1%
Total	100.0%	100.0%
F(4.29, 291.73) = 0.520, p = 0.734		

Table D.3. Answers to question Q3: How important to you is improving local libraries?		
Not important at all	3.5%	4.1%
Slightly important	14.5%	15.3%
Moderately important	28.2%	28.9%
Very important	39.6%	39.5%
Extremely important	13.8%	12.0%
Don't know/refused	0.3%	0.3%
Total	100.0%	100.0%
F(4.26, 289.81) = 0.253, p = 0.917		

Table D.4. Answers to question Q4: How		
important to you is reducing crime?		
Response	Base	Scope
Not important at all	0.3%	0.4%
Slightly important	2.1%	1.5%
Moderately important	6.8%	6.6%
Very important	34.4%	34.7%
Extremely important	56.3%	56.8%
Don't' know/refused	0.0%	0.0%
Total	100.0%	100.0%
F(4.27, 290.62) = 0.211, p = 0.941		

Table D.5. Answers to question Q5: How		
important to you is helping farmers increase		
their incomes?		
Response	Base	Scope
Not important at all	5.0%	5.8%
Slightly important	10.8%	12.4%
Moderately important	27.2%	23.9%
Very important	38.6%	38.6%
Extremely important	17.9%	18.3%
Don't know/refused	0.6%	1.0%
Total	100.0%	100.0%
F(4.41, 299.75) = 0.63, p = 0.654		

Table D.7. Answers to question Q7: Should the state spend more money, less money or about what is being spent now on building new state prisons?		
Response	Base	Scope
A lot less	10.7%	11.0%
A little less	8.7%	9.5%
About what is being spent now	45.3%	40.6%
A little more	14.4%	20.1%
A lot more	17.2%	15.7%
Don't know/refused	3.7%	3.0%
Total	100.0%	100.0%
F(4.55, 309.58) = 1.68, p = 0.145		

Table D.8. Answers to question Q8: Should the state spend more money, less money or about			
_	what is being spent now on repairing roads?		
Response Base Scope			
A lot less	1.5%	1.0%	
A little less	1.0%	0.7%	
About what is being spent now	11.2%	12.4%	
A little more	20.3%	18.3%	
A lot more	65.6%	67.0%	
Don't know/refused	0.5%	0.6%	
Total	100.0%	100.0%	
F(4.35, 295.71) = 0.41, p = 0.818			

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Table D.9. Answers to question Q9: Should the state spend more money, less money or about what is being spent now on salaries for professors at state universities?

Response	Base	Scope
A lot less	7.6%	9.7%
A little less	8.3%	11.4%
About what is being spent now	50.5%	49.7%
A little more	17.3%	14.5%
A lot more	9.4%	8.6%
Don't know/refused	6.8%	6.1%
Total	100.0%	100.0%
F(4.64, 315.74) = 1.25, p = 0.286		

Table D.10. Answers to question Q10: Should the state spend more money, less money or about what is being spent now on health care for children?

	Weighted	
Response	Base	Scope
A lot less	1.3%	0.8%
A little less	0.4%	1.0%
About what is being spent now	15.7%	18.0%
A little more	24.2%	22.6%
A lot more	56.8%	57.1%
Don't know/refused	1.6%	0.6%
Total	100.0%	100.0%
F(4.69, 318.73) = 1.24, p = 0.293		

Table D.11. Answers to question Q11: Should the state spend more money, less money or about what is being spent now on cleaning up pollution?

	Weighted	
Response	Base	Scope
A lot less	1.9%	1.2%
A little less	2.2%	1.2%
About what is being spent now	27.2%	25.9%
A little more	26.8%	29.8%
A lot more	39.5%	40.4%
Don't know/refused	2.5%	1.5%
Total	100.0%	100.0%
F(4.29, 291.50) = 0.95, p = 0.439		

Table D.12. Answers to question Q12: Should the state spend more money, less money or about what is being spent now on state parks?

	Weighted	
Response	Base	Scope
A lot less	4.8%	3.2%
A little less	6.2%	5.7%
About what is being spent now	49.4%	54.2%
A little more	23.0%	22.7%
A lot more	14.8%	13.4%
Don't know/refused	1.9%	0.7%
Total	100.0%	100.0%
F(4.25, 289.20) = 1.25, p = 0.290		

Table D.13. Answers to question Q13: Before today, had you ever been interviewed like this to get your opinion about whether the State should or should not spend tax money for a particular purpose?

Response	Base	Scope
No	98.1%	98.0%
Yes	1.9%	2.0%
Total	100.0%	100.0%
F(1, 68) = 0.03, p = 0.867	'	

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Table D.14. Answers to question Q14: Have you ever visited the Illinois River or the creeks flowing into it?		
Response	Base	Scope
No	47.3%	43.5%
Yes	52.6%	56.5%
Don't know/refused	0.1%	0.0%
Total	100.0%	100.0%
F(1.60, 108.95) = 1.41, p = 0.248		

Table D.15. Answers to question Q15: Have you ever visited Tenkiller Lake?		
Response	Base	Scope
No	49.9%	48.7%
Yes	50.0%	51.3%
Total	100.0%	100.0%
F(1.60, 109.11) = 0.26, p = 0.722		

Table D.16. Answers to question Q16: Before today, did you know that the Illinois River had been named a Scenic River?		
Response	Base	Scope
No	66.7%	68.2%
Yes	33.3%	31.8%
Don't know/refused	0.1%	0.0%
Total	100.0%	100.0%
F(1.98, 134.64) = 0.47, p = 0.623		

Table D.17. Answers to question Q17: Before today, had you heard anything about the changes in the river or lake that I just described?		
Response	Base	Scope
No	68.8%	66.9%
Yes	31.2%	33.1%
Total	100.0%	100.0%
F(1, 68) = 0.51, p = 0.479		

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Table D.18. Answers to question Q18: Have you personally seen any of these changes in the river or lake, or have you not seen any of these changes?

Response	Base	Scope
No	65.4%	66.1%
Yes	34.6%	33.9%
Total	100.0%	100.0%
F(1, 68) = 0.05, p = 0.831	•	

Table D.19. Answers to question Q19: Is there anything I have told you about the river or lake that you would like me to repeat?

Response	Base	Scope
No	99.7%	100.0%
Yes	0.3%	0.0%
Total	100.0%	100.0%
F(1, 68) = 1.18, p = 0.281		

Table D.20. Answers to question Q20: Before today, had you heard anything about why there is now more phosphorus in the river and lake than in around 1960?

Response	Base	Scope
No	65.0%	63.9%
Yes	35.0%	36.1%
Total	100.0%	100.0%
F(1, 68) = 0.15, p = 0.699		

Table D.21. Answers to question Q21: Before today, had you ever heard of alum?

Response	Base	Scope
No	52.4%	55.1%
Yes	47.4%	44.9%
Don't know/refused	0.2%	0.0%
Total	100.0%	100.0%
F(1.89, 128.78) = 0.69, p = 0.497		

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Table D.22. Answers to question Q22: Before
today, had you heard that alum could reduce
algae in water?

Response	Base	Scope
No	90.7%	91.7%
Yes	9.3%	8.3%
Don't know	0.0%	0.0%
Total	100.0%	100.0%
F(1, 68) = 0.37, p = 0.544		

Table D.23. Answers to question Q23: Would you like me to repeat anything that I just told you?

Response	Base	Scope
No	99.5%	99.4%
Yes	0.5%	0.6%
Total	100.0%	100.0%
F(1, 68) = 0.09, p = 0.760	•	

Table D.24. Answers to question W1: Now please tell me whether you vote for or against the alum treatments, which would cost your household a one time additional tax of \$ (BIDAMT).

Response	Base	Scope
Against	39.5%	55.0%
For	59.3%	43.8%
Don't know/refused	1.2%	1.2%
Total	100.0%	100.0%
F(1.99, 135.65) = 11.09, p < 0.001		

Response	Base	Scope
Not sure at all	2.3%	1.4%
Slightly sure	5.6%	3.9%
Moderately sure	20.3%	18.7%
Very sure	39.1%	45.1%
Extremely sure	32.7%	30.9%
Don't know/refused	0.1%	0.0%
Total	100.0%	100.0%
F(4.35, 295.76) = 1.36, p = 0.245		

Table D.26. Answers to question Q25: After spreading of litter is banned, how serious did you think the effects of algae in the river would be if no alum treatments are done?<sup>1</sup>

be a no trum treatments are done.		
Response	Base	Scope
Not serious at all	5.3%	8.3%
Slightly serious	13.1%	24.2%
Moderately serious	37.5%	35.9%
Very serious	30.1%	21.3%
Extremely serious	12.4%	7.5%
Don't know/refused	1.5%	2.9%
Total	100.0%	100.0%
F(5.37, 365.21) = 8.28, p < 0.001		

<sup>1.</sup> In the scope version, question Q25 was, "After spreading of litter is banned, how serious did you think the effects of algae in the river would be?"

Response	Base	Scope
Not serious at all	5.6%	6.8%
Slightly serious	14.9%	20.6%
Moderately serious	33.4%	35.1%
Very serious	31.7%	27.0%
Extremely serious	13.3%	8.1%
Don't know/refused	1.1%	2.3%
Total	100.0%	100.0%
F(5.14, 349.69) = 4.18, p < 0.001		

Table D.28. Answers to question Q27: When you decided how to vote, did you think that alum treatments would be done only if a court bans spreading of litter, or did you think that the alum treatments might be done anyway?

Response	Base	Scope
Might be done without the ban	24.2%	24.4%
Will only be done with ban	73.0%	74.3%
Don't know/refused	2.8%	1.3%
Total	100.0%	100.0%
F(2.72, 184.88) = 1.08, p = 0.354		,

Response	Base	Scope
Phosphorous had not caused the	5.3%	5.2%
changes		
Phosphorus had caused the	88.1%	87.1%
changes		
Didn't think any changes had taken	2.2%	2.7%
place		
Don't know/refused	4.5%	5.1%
Total	100.0%	100.0%
F(3.73, 253.97) = 0.58, p = 0.667		

Table D.30. Answers to question Q29: When you decided how to vote, did you think that it would take about 50 years for the river to get back to around 1960 conditions without alum treatments, or did you think it might take less time or more time?<sup>2</sup>

Response	Base
Less time	24.4%
About 50 years	38.4%
More time	31.4%
Don't know refused	5.8%
Total	100.0%

<sup>2.</sup> Question Q29 was only asked of respondents who received the base questionnaire.

Response	Base	Scope
Less time	25.2%	17.3%
About 60 years	38.4%	42.2%
More time	31.6%	34.4%
Don't know/refused	4.9%	6.1%
Total	100.0%	100.0%
F(3.64, 247.72) = 2.86, p < 0.05		

Table D.32. Answers to question Q31: When you decided how to vote, how well did you think that alum treatments would work at reducing algae in the water?<sup>3</sup>

Response	Base	Scope
Not well at all	2.9%	3.0%
Slightly well	7.1%	16.1%
Moderately well	25.4%	34.3%
Very well	45.2%	35.0%
Extremely well	15.9%	9.8%
Don't know/refused	3.5%	1.8%
Total	100.0%	100.0%
F(5.17, 351.52) = 9.36, p < 0.001		

<sup>3.</sup> In the scope version, question Q32 was, "When you decided how to vote, how well did you think that alum treatments would work at reducing algae in the lake?"

Response	Base	Scope
Less than the amount	13.9%	16.6%
The amount you told me	51.0%	52.4%
More than the amount	31.6%	28.4%
Don't know/refused	3.5%	2.7%
Total	100.0%	100.0%
F(3.57, 243.03) = 1.22, p = 0.303		

Table D.34. Answers to question Q33: When you decided how to vote, did you think that the extra tax money would be used for alum treatments to reduce algae in only Tenkiller Lake and the Illinois River and creeks flowing into it, or did you think some of this money would be used clean up other rivers and lakes in Oklahoma as well?<sup>4</sup>

Response	Base	Scope
Would be used for other rivers and	41.2%	39.2%
lakes		
Would be used only in Tenkiller	56.6%	58.7%
Lake, the Illinois River, and creeks		
flowing into them		
Don't know/refused	2.2%	2.1%
Total	100.0%	100.0%
F(2.94, 199.68) = 0.33, p = 0.803		

<sup>4.</sup> In the scope version, question Q32 was, "When you decided how to vote, did you think that the extra tax money would be used for alum treatments to reduce algae only in Tenkiller Lake, or did you think some of this money would be used to clean up other lakes in Oklahoma as well?"

Table D.35. Answers to question Q34: When you decided how to vote, did you think that if the alum treatments are done successfully for the Illinois River and Tenkiller Lake, this would or would not increase the chances that other rivers and lakes in Oklahoma would get alum treatments later?<sup>5</sup>

Response	Base	Scope
Would not	9.4%	10.0%
Would	87.9%	86.5%
Don't know/refused	2.8%	3.5%
Total	100.0%	100.0%
F(2.71, 184.56) = 0.23, p = 0.859		

Table D.36. Answers to question Q35: In general, how much do you believe what university scientists say?		
Response	Base	Scope
Not at all	1.6%	1.4%
A little	11.4%	10.0%
A moderate amount	34.4%	38.4%
A lot	31.5%	31.4%
A great deal	19.9%	18.5%
Don't know/refused	1.3%	0.3%
Total	100.0%	100.0%
F(5.21, 354.13) = 2.02, p = 0.072		

<sup>5.</sup> In the scope version, question Q32 was, "When you decided how to vote, did you think that if the alum treatments are done successfully for Tenkiller Lake, this would or would not increase the chances that other lakes in Oklahoma would get alum treatments later?"

Response	Base	Scope
Not at all	9.1%	11.1%
A little	31.4%	29.7%
A moderate amount	44.4%	46.2%
A lot	10.1%	9.9%
A great deal	4.7%	2.5%
Don't know/refused	0.2%	0.7%
Total	100.0%	100.0%
F(4.83, 328.75) = 1.46, p = 0.204		

Table D.38. Answers to question Q37: If you had to choose, would you prefer to pay for new environmental programs through higher income taxes or through higher prices?

Response	Base	Scope
Through higher income taxes	46.0%	45.0%
Through higher prices	33.5%	35.4%
No preference	18.0%	18.2%
Don't know/refused	2.5%	1.4%
Total	100.0%	100.0%
F(3.56, 242.36) = 0.62, p = 0.627		

Table D.39. Answers to question Q38: During the last 12 months, how many times have you gone to any river or lake for sightseeing, fishing, boating, swimming, or any other type of recreation?

Statistic	Base	Scope
p10	0.0	0.0
p10 p25 p50 p75 p90	0.0	0.0
p50	1.5	1.5
p75	5.6	5.8
p90	19.3	18.4
mean	14.5	13.3
F(2.83, 192.41)=0.17, p=0	.905	•

Table D.40. Answers to question Q39: During the last 12 months, have you taken a trip away from home to observe birds or wildlife?			
Response Base Scope			
No	64.3%	64.3%	
Yes	35.4%	35.7%	
Don't know/refused	0.3%	0.0%	
Total	100.0%	100.0%	
F(1.95, 132.44) = 0.56, p = 0.566			

Table D.41. Answers to question Q40: During a typical month, how many times do you watch television programs or read about wild animals or birds?		
Statistic	Base	Scope
p10 p25 p50 p75	0.0	0.0
p25	1.0	1.0
p50	3.0	3.0
p75	7.1	7.5
p90	22.2	21.7
Mean	9.8	8.5
F(3.34, 227.12)=2.29, p=0	.072	•

Table D.42. Answers to question Q41: Would you say you think of yourself as a very strong environmentalist, a strong environmentalist, a moderate environmentalist, slightly an environmentalist, or not an environmentalist at all?		
Response	Base	Scope
Not an environmentalist at all	8.1%	8.0%
Slightly an environmentalist	23.8%	25.8%
A moderate environmentalist	43.6%	44.3%
A strong environmentalist	16.1%	15.3%
A very strong environmentalist	7.7%	6.6%
Don't know/refused	0.6%	0.0%
Total	100.0%	100.0%
F(4.33, 294.50) = 0.66, p = 0.635		

Table D.44. Answers to question Q43: Do you intend to move outside of Oklahoma in the next year?		
Response	Base	Scope
No	94.5%	95.7%
Yes	4.8%	3.1%
Don't know/refused	0.7%	1.2%
Total	100.0%	100.0%
F(2.15, 146.47) = 1.51, p = 0.224		

Table D.45a. Answers to question Q44m: In what month were you born?		
Statistic	Base	Scope
p10	1.5	1.6
p10 p25 p50 p75 p90	3.0	3.0
p50	5.5	5.6
p75	9.1	9.1
p90	11	11
Mean	6.5	6.4
F(4.44, 301.70)=0.48, p=0.	771	•

Table D.46. Answers to question Q45: What is			
the highest degree or level of school you have			
completed?			
Response	Base	Scope	
None	0.4%	0.0%	
Nursery	0.4%	0.0%	
5th grade or 6th grade	0.3%	0.1%	
7th grade or 8th grade	1.4%	1.5%	
9th grade	2.8%	1.7%	
10th grade	2.2%	2.7%	
11th grade	4.7%	3.9%	
12th grade, no diploma	4.9%	6.7%	
High school graduate or GED	28.5%	29.4%	
Some college credit, but less than	7.3%	6.6%	
1 year			
One or more years of college, no	15.7%	16.0%	
degree			
Associates degree	9.2%	11.3%	
Bachelor's degree	15.5%	14.3%	
Master's degree	5.1%	4.5%	
Professional degree (e.g., MD,	0.7%	0.5%	
DDS, DVM, LLB, JD)			
Doctorate degree	0.7%	0.5%	
Don't know/refused	0.2%	0.3%	
Total	100.0%	100.0%	
F(12.16, 826.75) = 0.75, p = 0.709			

Table D.47. Answers to question Q46: Do you
have children or stepchildren of any age,
including anyone who lives outside your
household?

Response	Base	Scope
No	28.3%	28.5%
Yes	71.4%	71.2%
Don't know/refused	0.3%	0.3%
Total	100.0%	100.0%
F(2.45, 166.69) = 0.63, p = 0.564		

Table D.48. Answers to question Q47: Do you have any grandchildren?		
Response	Base	Scope
No	59.1%	59.5%
Yes	40.7%	40.2%
Don't know/refused	0.2%	0.3%
Total	100.0%	100.0%
F(2.58, 175.63) = 0.58, p = 0.605		

Table D.49. Answers to question Q48: Did anyone in your household pay Oklahoma state income taxes in 2007, either by having taxes withheld from your income or by sending money to the State with a tax form, or did no one in your household pay taxes last year?

Response	Base	Scope
No	19.2%	13.7%
Yes	79.6%	84.2%
Don't know/refused	1.2%	2.1%
Total	100.0%	100.0%
F(2.52, 171.57) = 2.18, p = 0.103	•	

Table D.50. Answers to question Q49: When you filed your state tax return for 2007, did you get a refund of all the money that you paid in before that?

Response Base Scope

Response	Base	Scope
No	75.1%	73.2%
Yes	20.2%	22.1%
Don't know/refused	4.7%	4.8%
Total	100.0%	100.0%
F(2.74, 186.57) = 1.99, p = 0.122		

Table D.51. Answers to question Q50: What		
language do you usually speak at home?		
Response	Base	Scope
English	97.2%	97.2%
Other	2.8%	2.8%
Total	100.0%	100.0%
F(1, 68) = 0.00, p = 0.993		

Table D.52. Answers to question Q51: Are you Spanish, Hispanic, or Latino?		
Response	Base	Scope
No	94.6%	93.4%
Yes	5.4%	6.6%
Total	100.0%	100.0%
F(1, 68) = 0.65, p = 0.421		

Table D.53. Answers to question Q52: Please choose one or more of the races shown here that			
you consider yourself to be.			
Response	Base	Scope	
White	79.7%	81.8%	
Black or African American	8.0%	5.7%	
American Indian or Alaska Native	8.0%	8.0%	
Asian	0.7%	0.8%	
Native Hawaiian or other Pacific Islanders	0.2%	0.3%	
Other	3.4%	3.5%	
Don't know/refused	0.1%	0.0%	
Total	100.0%	100.0%	
F(5.74, 390.26) = 0.58, p = 0.741			

Table D.54. Answers to question Q53: During 2007, what was your total family income before taxes?		
Statistic	Base	Scope
p10 p25 p50 p75	5538.9	6911.2
p25	15948.6	15869.8
p50	28670.7	28518.8
p75	49384.1	47786.4
p90	74220.1	74954.1
Mean	47576.0	47394.7
F(3.96, 269.20)=0.49, p=	0.738	

\$_(BIDAMT)?		
Response	Base	Scope
Extremely	11.5%	12.3%
Very	11.4%	10.9%
Moderately	18.0%	20.5%
Slightly	19.4%	17.5%
Not at all	39.2%	38.1%
Don't know/refused	0.4%	0.7
Total	100.0%	100.0%

Response	Base	Scope
Against	1.5%	1.7%
For	98.2%	98.3%
Don't know/refused	0.4%	0.0%
Total	100.0%	100.0%
F(2.63, 178.54) = 0.32, p = 0.782		

Table D.57. Combined answers to questions Q56 and Q56a: Thinking about all the information I gave you, overall, did it try to push you to vote one way or the other, or did it let you make up your own mind about which way to vote? and Which way did it try to push you to vote?

Response	Base	Scope
Pushed to vote against	0.5%	0.5%
Let me make up my own mind	90.1%	93.9%
Pushed to vote for	9.0%	4.7%
Other	0.3%	0.9%
Don't know/refused	0.2%	0.0%
Total	100%	100%
F(3.50, 237.93) = 3.87, p < 0.01		

Table D.58. Answers to question D1: What is respondent's sex?		
Response	Base	Scope
Male	49.1%	48.1%
Female	50.9%	51.9%
Total	100.0%	100.0%
F(1, 68) = 0.16, p = 0.687		·

Table D.60. Answers to question D3: How attentive was the respondent?		
Response	Base	Scope
Extremely	46.6%	43.7%
Very	41.9%	44.9%
Moderately	7.7%	7.6%
Slightly	2.1%	1.6%
Not at all	1.6%	2.1%
Total	100.0%	100.0%
F(3.57, 243.06) = 0.52, p = 0.701		

Table D.61. Answers to question D4: How well		
did the respondent understand the material?		
Response	Base	Scope
Extremely	48.1%	44.1%
Very	40.5%	48.8%
Moderately	9.6%	6.5%
Slightly	1.5%	0.5%
Not at all	0.2%	0.1%
Total	100.0%	100.0%
F(3.45, 234.88) = 3.55, p<0.05		

Table D.62. Answers to question D5: Did the respondent say anything suggesting that he or she had any difficulty understanding what you told him or her?

Response	Base	Scope
No	97.5%	97.9%
Yes	2.5%	2.2%
Total	100.0%	100.0%
F(1, 68) = 0.15, p = 0.703		

Table D.63. Answers to question D6: Did the respondent have any difficulty understanding the vote questions?

Response	Base	Scope
No	98.1%	98.4%
Yes	1.9%	1.6%
Total	100.0%	100.0%
F(1, 68) = 0.21, p = 0.649		

Table D.64. Answers to question D7: How			
impatient was the respondent?			
Response	Base	Scope	
Extremely impatient	1.2%	0.7%	
Very impatient	1.9%	1.4%	
Moderately impatient	3.4%	3.9%	
Slightly impatient	9.8%	11.1%	
Not impatient at all	83.7%	83.0%	
Total	100.0%	100.0%	
F(3.06, 208.15) = 0.49, p = 0.693			

F(3.57, 242.57) = 1.79, p = 0.139

Table D.65. Answers to question D8: How seriously did the respondent think about the decision about how to vote?		
Response	Base	Scope
Extremely seriously	42.7%	41.9%
Very seriously	47.7%	49.9%
Moderately seriously	8.1%	6.4%
Slightly seriously	1.3%	0.6%
Not at all seriously	0.3%	1.1%
Total	100.0%	100.0%

Table D.66. Answers to quest counting you and the responage 13 or older present when voted?	dent, was a	anyone
Response	Base	Scope
No	66.7%	62.5%
Yes	27.9%	33.0%
Others came in and out	5.4%	4.5%
Total	100.0%	100.0%
F(1.92, 130.69) = 1.69, p = 0.190		

# **D.2** Tabulation of Open-Ended Responses

# **D.2.1** Coding methodology

The Strategy Team coded the verbatim responses for the following questions: Q17A, Q18A, Q20A, Q22A, W1A, W2, W3, and Q56B.

- The coding manual used to classify open-ended responses was provided by Stratus
  Consulting to Dr. Amanda Scott (see Section D.2.2). For each question coded, multiple
  response variables were created. Each response variable was coded 1 if a respondent gave
  a specific type of answer and 0 if the respondent did not.
- Twelve coders conducted the coding. All coders were experienced with coding from previous projects and/or had obtained a bachelor's degree or more education. Coding was supervised by Dr. Scott, who was responsible for hiring and supervising coders and overseeing all aspects of the coding process.
- All coders were given the coding manual and were instructed to read it carefully prior to beginning work. Coders were permitted to ask clarifying questions about the manual before work began and could contact Dr. Scott to ask questions after work began.
- All open-ended answers were delivered in Excel files. Five files (referred to as
  Deliverable 1 through Deliverable 5) were provided for coding, and each file contained
  one tab for each open-ended question to be coded (i.e., Q17a, Q18a, Q20a, Q22a, QW1,
  QW2, QW3, and Q56b).
- 5. Upon receipt of each excel file, Dr. Scott:
  - Separated the Excel file by tab so that each tab contained one question to be coded.
  - Distributed the set of responses for each question to two coders who coded the responses according to the instructions in the coding manual, working independently.
- Coders emailed their completed spreadsheets back to Dr. Scott, with codes inserted. Each row corresponded to one respondent's answer to a question. In that row, cells indicated:
  - a. CASEID and / or EXTID, which uniquely identified the respondent
  - b. Answers, which were the open-ended text the respondent uttered
  - c. The coding decisions (1 if a respondent's answer matched a specific category and 0 if not). Hypothetical data for Q22 might look like this:

ExtID	Q22A Answers	Q22A_ 1	Q22A_ 2	Q22A_ 3	Q22A_ 4	Q22A_ 5	Q22A_ 6	Q22A_ 7
99999	ANSWER PROVIDED INDICATED CODING CATEGORIES Q22a_2 & Q22a_4 APPLIED	0	1	0	1	0	0	0

- Once a file for a question was received from two coders, the two sets of codes were analyzed to identify and resolve disagreements between coders.
- 8. Disagreement between coders were identified and resolved as follows:

- b. The "other" coding category was removed from each file<sup>1</sup>;
- c. The two SPSS files were sorted by respondents ID (necessary for next step); and
- d. The two SPSS files were merged together to create one file that included the codes assigned by coder 1 and coder 2 for each question.
- 9. For each response, coder 2's results were subtracted from coder 1's results, for each variable coded. Disagreements between coders were identified by 1 (if coder 1 coded the variable 1, and Coder 2 did not) or -1 (if coder 2 coded the variable 1, and Coder 2 did not). Agreements were revealed by a value of 0. These indicator variables were then recoded so that both 1 and -1 indicated disagreement and 0 indicated agreement.
- 10. For each deliverable, the percent of agreement was calculated according to the following formulas:

- 11. Overall, the first two coders agreed on 97% of coding judgments.
- 12. Instances where disagreement occurred were identified, and a third coder was asked to code them independently. This third coder reviewed each instance where disagreement had occurred previously and recorded their own decision in a third spreadsheet. This spreadsheet was converted into an SPSS file and merged with the first and second sets of codes. Whenever the first two coders disagreed about a variable, the third coder's decision was used as the final code.

<sup>&</sup>lt;sup>1</sup> Because the designation of "other" depended on whether or not any other coding category was assigned, agreements and disagreements in this category were redundant with agreements in other categories of the same question.

13. The final codes were exported into Excel format and merged back into the original Excel file provided by Stratus consulting. Accuracy checks verified that all original responses had a code for each variable and that a random sample of final coded cases matched the codes provided by the individual coders. The final coded deliverable was then sent back to Stratus Consulting.

## D.2.2 Coding manual

# **Coding Manual**

Your job is to read respondents' answers to eight survey questions and make a series of decisions about each answer. This document tells you the decisions you have to make and the procedure you will follow to type your decisions into an Excel worksheet.

If you have questions, call Amanda Scott at 614.447.8844 or 614.735.6072.

#### Survey Background

The answers you will read were given by people who were interviewed for a survey that told the respondents about increases in algae and other ecosystem changes that have taken place in the Illinois River and Tenkiller Lake in Oklahoma. Scientists believe that these changes were caused by phosphorus coming from various sources. The survey then told respondents about a proposed plan to remove the phosphorus and asked the respondents to vote for or against the plan.

#### Glossary of Common Terms

- Algae organisms that often live in or near water and that can change the ecosystem in the water.
- Alum a mineral that occurs naturally in the environment and can be used to remove phosphorus from soil or water.
- Alum treatments the proposed plan to put alum on land and in water to reduce phosphorus and to prevent more algae from growing.
- Ban a federal court may order a stop to all future spreading of poultry litter on land around the river and lake.
- Fertilizers other than poultry litter another possible source of the phosphorus in the river and lake.
- Illinois River the main river in eastern Oklahoma the survey told people about.
- Largemouth and smallmouth bass two species of fish found in the river and lake.
- Low oxygen when a lot of algae is growing in water, the algae can consume a lot of the oxygen in the water, leaving little available for fish and other wildlife.
- Murky a term sometimes used to describe how the river and lake sometimes look these days.
- Phosphorus a nutrient that helps algae to grow.

1

- Poultry litter chicken and turkey droppings mixed with wood shavings and other things put on the floors of poultry houses.
- The "River" includes the Illinois River, Flint Creek, Barren Fork Creek, and the many smaller creeks flowing into them.
- Scenic river rivers designated by the State of Oklahoma to be protected, including the Illinois River, Flint Creek, Barren Fork Creek, Lee Creek, Little Lee Creek, and Upper Mountain Fork River.
- Sewage treatment plants another possible source of the excess phosphorus in the river and lake.
- ▶ Tahlequah main city close to Tenkiller Lake and the Illinois River.
- Tenkiller Lake (or Lake Tenkiller) the main lake in eastern Oklahoma the survey described.
- Water treatment plants plants that purify water to make drinking water.

#### Instructions

You will look at respondents' answers to eight survey questions:

- Q17A. What had you heard? (follows Q17: Before today, had you heard anything about the changes in the river or lake that I just described?)
- Q18A. What changes have you seen? (follows Q18: Have you personally seen any of these changes in the river or lake, or have you not seen any of these changes?
- ▶ Q20A. What have you heard? (follows Q20: Before today had you heard anything about why there is now more phosphorus in the river and lake than in around 1960?)
- Q22A. What had you heard? (follows Q22: Before today, had you heard that alum could reduce algae in water?)
- W1A. Why did you vote against the alum treatments?
- W2. Could you tell me why you aren't sure?
- W3. What would spreading alum do that made you vote for it?
- Q56B. What made you think that it tried to push you to vote one way or the other?

For each survey question, you will do the following:

- You will get an Excel file that contains respondents' answers to the survey questions. Open this file. It will have one tab for each survey question. The tabs are boxes that appear near the bottom of the screen.
- At the bottom of the page, click tab Q17A. You will see respondents' answers to Q17A in Column C. In Column B, you will see a code for each answer. Do not change Column B or C.
- You will be assigned a coder number. Type this number in Column A when you make decisions about an answer.
- For each survey question, you will need to decide whether the respondent said a specific thing or not. You will make this decision by reading the respondent's answer and reading your instructions carefully.
- On each row of the Excel file, you will type a 1 when you decide that a respondent said that the specific thing of interest, or you will type a 0 when you decide that the respondent did not say the specific thing of interest.
- 6. You should identify what text you used in order to reach each decision. To do this, highlight in red the portion of text within each cell that made you type a 1. Insert the number of the question you answered (e.g., Q18A\_9) at the end of the highlighted text. See table below for an example of how to do this.

Coder ID	ExtID	QX Answers	QX_1	QX_2	Q1X_3
123	1	There was more algae. QX_1 There is less oxygen. QX_3	1	0	1

### **Considerations for Answering Questions**

When making your decisions, please keep the following in mind:

- Assume that the respondent's answer refers to the Illinois River, Flint Creek, Barren Fork Creek, or the many smaller creeks flowing into them ("the River"), or Tenkiller Lake ("the Lake") unless the person explicitly said he/she meant some other body of water.
- The respondent didn't have to use the exact words in your instructions in order for you to decide he/she said that thing the meaning of the answer has to match the meaning of your instruction, even if the exact words don't match.

# Decisions You Will Make for Survey Question Q17A

▶ Q17A. What had you heard? (follows Q17: Before today, had you heard anything about the changes in the river or lake that I just described?)

## Did the respondent say that:

# Q17A\_1. The poultry industry or poultry litter caused the changes?

YES	1	
NO	0	
Here are some of the ways that a p	erson might identify the poultry litte	er or the poultry industry:
Arkansas chicken farmers	Chicken farms	Oklahoma turkey growers
Arkansas chicken farms	Chicken growers	Oklahoma turkey industry
Arkansas chicken growers	Chicken industry	Oklahoma turkey litter
Arkansas chicken industry	Chicken litter	Oklahoma turkey pollution
Arkansas chicken litter	Chicken pollution	Oklahoma turkey poop
Arkansas chicken pollution	Chicken poop	Poultry farmers
Arkansas chicken poop	Oklahoma chicken farmers	Poultry farms
Arkansas poultry farmers	Oklahoma chicken farms	Poultry growers
Arkansas poultry farms	Oklahoma chicken growers	Poultry industry
Arkansas poultry growers	Oklahoma chicken industry	Poultry litter
Arkansas poultry industry	Oklahoma chicken litter	Poultry pollution
Arkansas poultry litter	Oklahoma chicken pollution	Poultry poop
Arkansas poultry pollution	Oklahoma chicken poop	Turkey farmers
Arkansas poultry poop	Oklahoma poultry farmers	Turkey farms
Arkansas turkey farmers	Oklahoma poultry farms	Turkey growers
Arkansas turkey farms	Oklahoma poultry growers	Turkey industry
Arkansas turkey growers	Oklahoma poultry industry	Turkey litter
Arkansas turkey industry	Oklahoma poultry litter	Turkey pollution
Arkansas turkey litter	Oklahoma poultry pollution	Turkey poop
Arkansas turkey pollution	Oklahoma poultry poop	Tyson

Arkansas turkey poop	Oklahoma turkey farmers	Sewage / runoff from any of above
Chicken farmers	Oklahoma turkey farms	
Here are some examples of thin decision:	gs the respondent might say that w	ould lead you to type a 0 for this
Arkansas farms	Oklahoma farms	Agriculture other than poultry
Farms in general		

# Q17A\_2. Sewage (general / human) caused the changes?

YES......1

industry

NO	0	
Here are some examples of things th decision:	e respondent might say that would	d lead you to type a 1 for this
Dumping raw sewage	Sewage treatment plants	
Here are some examples of things th decision:	e respondent might say that would	d lead you to type a 0 for this
Septic tanks	Dumping of sewage by farms	Dumping of sewage by poultry farms
Dumping of sewage by chicken farms	Dumping of sewage by turkey farms	Dumping of sewage by poultry farmers
Dumping of sewage by chicken farmers	Dumping of sewage by turkey farmers	Dumping of sewage by poultry growers
Dumping of sewage by chicken growers	Dumping of sewage by turkey growers	Dumping of sewage by poultry industry
Dumping of sewage by chicken	Dumping of sewage by turkey	

industry

Q17A_3. Fertilizers other tha	n poultry litter caused	the changes?
YES	1	
NO	0	
Here are some examples of things the decision:	respondent might say that would	d lead you to type a 1 for this
Fertilizers in general		
Here are some examples of things the redecision:	respondent might say that would	d lead you to type a 0 for this
The use of phosphorus as a fertilizer		
Q17A_4. Phosphorus caused	d the changes?	
YES	1	
NO	0	
Here are some examples of things the decision:	respondent might say that would	d lead you to type a 1 for this
Phosphates	Phosphorus coming from poultry poop	Phosphorus coming from chicken poop
Phosphorus coming from turkey poop	Phosphorus coming from poultry droppings	Phosphorus coming from chicken droppings
Phosphorus coming from turkey droppings	Phosphorus coming from poultry litter	Phosphorus coming from chicken litter

Sewage coming from treatment plants

Phosphorus coming from turkey

Q17A_5. Algae caused the o	changes?	
YES	1	
NO	0	
Responses here must indicate the alga- things the respondent might say that w		
The algae caused the changes	The algae is responsible the change	for
Here are some examples of things the decision:	respondent might say that w	ould lead you to type a 0 for this
There is more algae.	The algae.	There is less algae.
Q17A_6. The changes are ca phosphorus, fertilizers othe poultry industry?		
YES	1	
NO	0	
Responses must indicate that other fact things the respondent might say that w		
Farms in general	Low water flows	Camping
Pollution in general	Low water levels	Canoeing
Trash from tourists	Not enough water	Erosion
Trash from people	Low rain levels	Septic tanks

Agriculture other than poultry

YES	1	
NO	0	
	address the clarity of the water by ind ome examples of things the responde	•
Harder to see the bottom	The water looks gross	The water looks nasty
The water looks cloudy	The water looks mucky	The water looks murky
The water looks dark	The water looks dirty	The water is not clear
The water is green	The water looks green	The green water
	water IS some negative trait not direct examples of things the respondent m	
Pollution in general	The water is gross	The water is dirty

Q17A\_7. The water is murkier or is not as clear as it used to be?

YES......1

NO ...... 0

Here are some examples of things the respondent might say that would lead you to type a 1 for this decision:

Not enough oxygen Not enough oxygen for fish Not enough oxygen for plants

Not enough oxygen for animals Not enough oxygen for insects

Q17A_9. The types of fish	species are different that	an they used to be?
YES	1	
NO	0	
This code should be used when a pa examples of things the respondent n		
Some species of fish are less common	Some species of fish are more common	Less smallmouth bass
More largemouth bass in the lake		
Here are some examples of things the decision:	ne respondent might say that would	l lead you to type a 0 for this
There are fish in the river or lake	There are more fish	There are fewer fish
The fish are bigger	The fish are smaller	
Q17A_9b. There are fewer be?	fish, or the fish are sma	ller than they used to
YES	1	
NO	0	
Here are some examples of things the decision:	ne respondent might say that would	d lead you to type a 1 for this
The fishing isn't as good BECAU there aren't as many fish	JSE There aren't as many fis	th The fish are smalle
The fishing isn't as good BECAU the fish are smaller.	JSE	

Q17A_10.	There is more	algae in the river or lake	e than there used to be?
Y	ES	1	
N	0	0	
		e is the cause of the problem (C e, you should not type a 1 in Cat	
Here are some this decision:	other examples of thir	ngs the respondent might say th	at would lead you to type a 0 for
The water	looks more green	The water is more green	Green water
The Algae			
_	0b. There is ollution in		
	YES		
	NO		
			n more algae, different ater, or more pollution?
Y	ES	1	
N	o	0	
Here are some decision:	examples of things the	e respondent might say that wo	uld lead you to type a 1 for this
More trash	in the river or lake	More people	More tourists
Drinking		Partying	The water is dirty
The water	is nasty	The water is gross	
Here are some decision:	examples of things the	e respondent might say that wo	uld lead you to type a 0 for this
	any changes in rivers Creek, or Barren Fork	or lakes other than Tenkiller La c Creek.	ke, Lake Tenkiller, the Illinois

Q17A_12. There are cha or creeks flowing into i		ike, the Illinois River,
YES	1	
NO	0	
Enter a 1 if the respondent's answer the Illinois River, Flint Creek, or Barr		n Tenkiller Lake, Lake Tenkiller,
Q17A_13. He/she heard mention any types of cau	about changes in the rive	er or lake, but did not
YES	1	
NO	0	
Here are some examples of things to decision:	he respondent might say that would	I lead you to type a 1 for this
Heard about the changes	Read about the changes in the newspaper	Saw it on TV
It has changed	Heard about it	Someone told me about it
Someone told me about the changes	I have seen the changes	
Q17A_14. Heard about	a lawsuit involving the rive	er or lake?
YES	1	
NO	0	
Here are some examples of things to decision:	he respondent might say that would	I lead you to type a 1 for this

Any reference to lawsuit

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Q17A_14b.	He/she uses the	e lake less than before?	•
Υ	ES	1	
N	o	0	
Here are some decision:	examples of things the	e respondent might say that would	lead you to type a 1 for this
I swim then	e less now	I used to swim there now I don't	I don't fish there as much now
I don't fish	there now	My family and I used to go there but not anymore	
Q17A_15. question	He/she <b>did not</b> he/she was aske	know or did not remem	aber the answer to the
Υ	ES	1	
N	0	0	
know or remem		he/she did not remember. Do not I is blank or because the responde	[HONEL ] [1] 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
Q17A_16.	He/she refused	I to answer the questions	s he/she was asked?
Υ	ES	1	
N	o	0	
	cause the response cel	explicitly refused to answer. Do n	
Q17A_17.	The cell where	the respondent's answer	would appear is blank.
Υ	ES	1	
N	0	0	
You should type	e a 1 only if there is no	response in the cell.	

Q17A_18.	He/she said something that did not get categorized with a yes
in any of	your prior decisions?

## Decisions You Will Make for Survey Question Q18A

Q18A. What changes have you seen? (follows Q18: Have you personally seen any of these changes in the river or lake, or have you not seen any of these changes?

### Die

d the respondent say that:		
Q18A_1. The water is mu	rkier or is not as clear as	it used to be?
YES	1	
NO	0	
Responses must specifically address a color descriptor. Here are some extype a 1 for this decision:		
Hard to see the bottom	The water looks gross	The water looks nasty
The water looks cloudy	The water looks mucky	The water looks murky
The water looks dark	The water looks dirty	The water is not clear
The water is green	The water looks green	The green water
Here are some examples of things to decision:	ne respondent might say that wou	ld lead you to type a 0 for this
Pollution in general		
Q18A_2. There is less oxy	<b>/gen</b> in the river or lake t	han there used to be?
YES	1	
NO	0	
Here are some examples of things to decision:	ne respondent might say that wou	ld lead you to type a 1 for this
Not enough oxygen	Not enough oxygen for fish	Not enough oxygen for plant
Not enough oxygen for animals	Not enough oxygen for insects	

Q18A_3. The types of fish	species are different th	an they used to be?
YES	1	
NO	0	
This code should be used when a pa examples of things the respondent m		
Some species of fish are less common	Some species of fish are more common	Less smallmouth bass
More largemouth bass in the lake	There are more fish	There are less fish
The fish are smaller		
Here are some examples of things th decision:	e respondent might say that would	I lead you to type a 0 for this
There are fish in the river or lake		
Q18A_3b. There are fewer be?	fish, or the fish are sma	ller than they used to
YES	1	
NO	0	
Here are some examples of things th decision:	e respondent might say that would	I lead you to type a 1 for this
The fishing isn't as good BECAU there aren't as many fish	There aren't as many fis	h The fish are smaller
The fishing isn't as good BECAU the fish are smaller.	ISE	
Q18A_4. There is more alo	gae in the river or lake tha	n there used to be?
YES	1	
NO	0	

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Q18A_4b. There is more p	pollution in general?	
YES	1	
NO	0	
Q18A_5. He/she heard ab	out changes other than less oxygen, murkier w	
YES	1	
NO	0	
Here are some examples of things to decision:	ne respondent might say that wou	ld lead you to type a 1 for this
More trash in the river or lake	More people	More tourists
Drinking	Partying	The fishing is not as good (general)
More trash / litter in area (general)	Bad smells	Dead fish
Less wildlife		
Here are some examples of things to decision:	ne respondent might say that wou	ld lead you to type a 0 for this
	s or lakes other than Tenkiller Lak rk Creek. Mention any changes a	
Q18A_5b. He/she uses th	e lake less than before?	•
YES	1	
NO	0	
Here are some examples of things to decision:	ne respondent might say that wou	ld lead you to type a 1 for this
I swim there less now	I used to swim there now I don't	I don't fish there as much no
I don't fish there now	My family and I used to go there but not anymore	

The state of the s	He/she has seen of or creeks flowing		Tenkiller Lake, the Illinois
	he respondent mentions r Creek, or Barren Fork Cre		Tenkiller Lake, Lake Tenkiller, the Illino
	YES	1	
	NO	0	
	He/she saw the cl pes of causes or ty		r or lake, but did not mention
	YES	1	
	NO	0	
Here are sor decision:	me examples of things the	e respondent might say to	hat would lead you to type a 1 for this
I sawth	e changes	It has changed	Been there
Q18A_8.	He/she has heard	about the lawsui	t?
	YES	1	
	NO	0	
	He/she did not kn e was asked?	ow or remember	the answers to the questions
	YES	1	
	NO	0	
know or rem		l is blank or because the	r. Do not assume the respondent did no respondent rambled through a non-
Q18A_10	. He/she refused	I to answer the qu	estions he/she was asked?

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You should type a 1 if the respondent explicitly refused to answer. Do not assume the respondent refused just because the response cell in the file was blank or for some other reason. Should not

include blank responses.

Q18A_11.	The cell where the respondent's answer would appear is blank
Y	'ES1
N	IO 0
You should type	e a 1 only if there is no answer recorded in Column C.
100 C	He/she said something that <b>did not get categorized</b> with a yes f your prior decisions?
Υ	ES1
	0

#### Decisions You Will Make for Survey Question Q20A

Q20A. What have you heard? (follows Q20: Before today had you heard anything about why there is now more phosphorus in the river and lake than in around 1960?)

## Did the respondent say that:

# Q20A\_1. The poultry industry or poultry litter caused the increased phosphorus?

YES	1
NO	0

Here are some of the ways that a person might identify the poultry litter or the poultry industry:

Arkansas chicken farmers	Chicken farms	Oklahoma turkey farms
Arkansas chicken farms	Chicken growers	Oklahoma turkey growers
Arkansas chicken growers	Chicken industry	Oklahoma turkey industry
Arkansas chicken industry	Chicken litter	Oklahoma turkey litter
Arkansas chicken litter	Chicken pollution	Oklahoma turkey pollution
Arkansas chicken pollution	Chicken poop	Oklahoma turkey poop
Arkansas chicken poop	Oklahoma chicken farmers	Poultry farmers
Arkansas poultry farmers	Oklahoma chicken farms	Poultry farms
Arkansas poultry farms	Oklahoma chicken growers	Poultry growers
Arkansas poultry growers	Oklahoma chicken industry	Poultry industry
Arkansas poultry industry	Oklahoma chicken litter	Poultry litter
Arkansas poultry litter	Oklahoma chicken pollution	Poultry pollution
Arkansas poultry pollution	Oklahoma chicken poop	Poultry poop
Arkansas poultry poop	Oklahoma poultry farmers	Turkey farmers
Arkansas turkey farmers	Oklahoma poultry farms	Turkey farms
Arkansas turkey farms	Oklahoma poultry growers	Turkey growers
Arkansas turkey growers	Oklahoma poultry industry	Turkey industry
Arkansas turkey industry	Oklahoma poultry litter	Turkey litter

Arkansas turkey litter Oklahoma poultry pollution Turkey pollution

Arkansas turkey pollution Oklahoma poultry poop Turkey poop

Arkansas turkey poop Oklahoma turkey farmers Tyson

Chicken farmers

Here are some examples of things the respondent might say that would lead you to type a 0 for this decision:

Arkansas farms Oklahoma farms Agriculture other than poultry

Farms in general

#### Q20A\_2. Sewage caused the increased phosphorus?

YES	 1
NO	 C

Here are some examples of things the respondent might say that would lead you to type a 1 for this decision caused the increased phosphorus:

Dumping raw sewage Sewage treatment plants

Here are some examples of things the respondent might say that would lead you to type a 0 for this decision caused the increased phosphorus:

Septic tanks Dumping of sewage by farms Dumping of sewage by poultry Dumping of sewage by chicken Dumping of sewage by turkey Dumping of sewage by poultry farms farms farmers Dumping of sewage by chicken Dumping of sewage by turkey Dumping of sewage by poultry growers farmers farmers Dumping of sewage by chicken Dumping of sewage by turkey Dumping of sewage by poultry growers growers industry Dumping of sewage by chicken Dumping of sewage by turkey industry industry